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**HARTCROWSER**

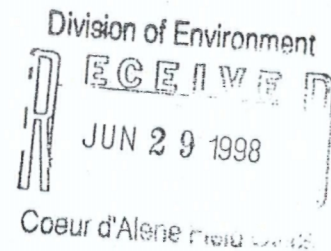
Earth and Environmental Technologies

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J-2296-07

April 2, 1998

Mr. Gregory A. Rapp  
Construction Services Manager  
Potlatch Corporation  
1100 Railroad Avenue  
P.O. Box 386  
St. Maries, Idaho 83861



Re: 1997 Annual Performance Report  
Avery Landing Recovery System

Dear Mr. Rapp:

Hart Crowser is pleased to present the Annual Performance Report for 1997 for the free product recovery system at the Avery Landing site. This letter report includes the following three sections, as required by your Consent Order with the State of Idaho Department of Health and Welfare, Division of Environmental Quality (IDEQ):

1. **Volume of Product Recovered.** The total amount of product recovered during the year, and the destination of the recovered product;
2. **Recovery System Effectiveness.** An analysis of the effectiveness of the recovery system with respect to free product capture; and
3. **Schedule.** A schedule for product and water level monitoring in 1998.

System performance data (groundwater elevations and free product thicknesses) for 1997 were reported in the quarterly performance reports submitted to the IDEQ. Only two quarters of monitoring were possible in 1997 due to high water levels in the St. Joe River.

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## **VOLUME OF PRODUCT RECOVERED**

During 1997 a product volume of approximately 100 gallons was recovered from the extraction trenches at the site and collected in the free product storage tank. This volume is approximately half the amount of product collected in 1996. The lower recovery volume is likely the result of operating the system for a shorter duration in 1997. The treatment system was not started until July of 1997 due to the St. Joe River flooding.

## **RECOVERY SYSTEM EFFECTIVENESS**

Our evaluation of the recovery system effectiveness in capturing free phase hydrocarbon product before it reaches the river is based on a capture zone analysis and the amount of free product removed from the river using oil absorbent booms. Based on the capture zone analysis completed for the 3rd quarter of 1996, we determined that lowering the elevations of the pumps in the extraction wells would improve product removal during the time that the water level in the river is at an extreme low. During the first quarter monitoring event in 1997, we reset the water pumps in the extraction wells to a lower level. With the new pump locations, we were able to provide groundwater table depression to below the river level in the extraction wells including EW-1, which has typically been ineffective during the driest part of the season.

The system should now maintain capture in all of the wells during the entire season. The results for the last quarter monitoring event for 1997 were not representative due to malfunctioning pumps in EW-3 and EW-4. The oil skimming pump in EW-3 was clogged with heavy oil, so that it was unable to remove the 0.78 foot of product in the well. The pump was cleaned and verified to be working during the October site visit. The groundwater table depression pump in EW-4 locked up for no apparent reason. The pump motor was replaced during the October site visit and the pump was verified to be working before leaving the site.

With the exception of the period with malfunctioning pumps, the system continues to be effective in maintaining an interception trench for free product. The oil absorbent booms are also being used to catch product that has escaped past the extraction trench.

## **SCHEDULE**

Table 1 presents the project schedule for the 1998 monitoring year.





**Table 1 - Avery Landing Recovery System  
Project Schedule for 1998 Monitoring Year**

<b>Scheduled Milestone</b>	<b>Date</b>
Startup Recovery System in Spring	May 1, 1998
Conduct First Quarter Monitoring	June 25, 1998
Submit First Quarter Performance Report	July 11, 1998
Conduct Second Quarter Monitoring	August 12, 1998
Submit Second Quarter Performance Report	September 4, 1998
Conduct Third Quarter Monitoring	October 22, 1998
Submit Third Quarter Performance Report	November 13, 1998
Submit Annual Report	February 5, 1999

This schedule may change based on weather conditions and is based on the results from previous years of sampling.

## **LIMITATIONS**

Work for this project was performed, and this letter prepared, in accordance with generally accepted professional practices for the nature and conditions of the work completed in the same or similar location, at the time the work was performed. It is intended for the exclusive use of the Potlatch Corporation for specific application to the referenced property.



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If additional information or clarification is required, please call Terry Montoya at (206) 324-9530.

Sincerely,

**HART CROWSER, INC.**

**TERRY MONTOYA**  
Project Engineer

**DAVE HEFFNER, P.E.**  
Associate

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cc: Kreg Beck, Idaho Department of Environmental Quality

